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ABSTRACT

A telephone survey was conducted of 12 U.S. pharmacy programs that had been identified as having curricular programs in geriatric pharmacy. The data collected is intended to assist faculty in the Ohio Valley Appalachia Regional Geriatric Center to assess their curricula and determine future directions for the geriatric pharmacy programs. The following significant aspects of the program surveyed were identified: at least one faculty member takes a leadership/coordination role for the program; the pharmacy school administration supports the program; most programs fund baccalaureate and doctoral courses from general operating funds, although outside monies contribute to postdoctoral activities; the faculty leader enlists faculty in pharmacy and other disciplines to teach courses; freestanding 100% geriatric pharmacy courses enable students to move from basic knowledge to application; didactic courses are elective, but 30% draw 30 or more pharmacy students per year; four programs require a geriatric clerkship at the doctoral level; a variety of clinical settings are utilized; and seven programs enroll students from other health science disciplines in a geriatric pharmacy course. A set of tables comparing the programs is appended. Contains 4 references. (KM)

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Ohio Valley Appalachia Regional Geriatric Education Center

Internal Report

SURVEY OF TWELVE SELECTED GERIATRIC PHARMACY PROGRAMS

May 12, 1987 Lexington, KY

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OVAR/GEC

The Ohio Valley Appalachia Regional Geriatric Education Center (OVAR/GEC) is one of 23 Geriatric Education Centers established across the United States to enhance geriatric education in the health sciences curricula. The five institutions comprising the OVAR/GEC are the University of Cincinnati, the University of Kentucky, the University of Louisville; East Tennessee State University, and West Virginia University. Three of these institutions include a school of pharmacy: University of Cincinnati, University of Kentucky, and West Virginia University.

REPORT SUMMARY

The Ohio Valley Appalachia Regional Geriatric Center (OVAR/GEC) conducted a telephone survey of 12 U. S. pharmacy programs that had been identified as having curricular programs in geriatric pharmacy. The data collected will be used to assist interested OVAR/GEC faculty assess their curricula and determine future directions for their programs in geriatric pharmacy. The data reported in the survey are accurate as of December 1986.

The survey identified the following significant data in these selected geriatric pharmacy programs: 1) at least one committed faculty member takes leadership/coordination role for program; 2) pharmacy school administration supports the program; 3) most programs fund B.S. and Pharm. D. courses from general operating funds, though outside monies contribute to postdoctoral activities; 4) faculty leader enlists pharmacy and multidisciplinary faculty to teach courses; 5) freestanding 100% geriatric pharmacy courses enable students to move from basic knowledge to application; 6) didactic courses are elective, but 30% draw 30 or more pharmacy students per year; 7) four programs require a geriatric clerkship at the Pharm. D. level; 8) programs utilize a variety of clinical settings; and 9) seven programs (58%) enroll students from other health science disciplines in a geriatric pharmacy course.

INTRODUCTION

The older adult population uses more than 25% of all prescription and nonprescription medications, and by the year 2000, medication use by older adults will comprise over 30% of all drug use.[1] Recognizing this reality, there is a need for pharmacy to assume a major role in geriatric health care. In order to meet this need, more adequate professional training must be provided by pharmacy schools.

The lack of geriatric education has direct implication for pharmacy practice. In a nationwide survey of 280 pharmacists currently involved in geriatric practice, 29% of the respondents stated that the most difficult aspect of geriatric pharmacy practice was inadequate professional knowledge of geriatrics or inadequate professional skills in that area.[2]

Realizing the need to address the critical issues involving the development of geriatric pharmacy curriculum, the Ohio Valley Appalachia Regional Geriatric Education Center core faculty requested a survey of selected programs in pharmacy schools across the United States to determine the extent to which their curricula are preparing students for geriatric pharmacy practice.

This report provides information concerning the design of the geriatric curricula, faculty and student involvement, organizational structure and future directions for these programs. The data will be used to assist interested OVAR/GEC faculty as they assess their curriculum and determine future directions for their programs in geriatric pharmacy.

THE SURVEY METHOD

In a nationwide survey of 72 pharmacy schools, Simonson noted that 43% offered courses which focused primarily on geriatrics.[3] The OVAR/GEC survey assessed the curriculum of 12 schools from this group. Most of the schools were recommended by recognized educators, William Simonson of Oregon State University, and Charles Brown of Purdue University. Interest in the other schools was generated by an intensive literature review which revealed their innovative approaches to geriatric pharmacy instruction.

During October and November, 1986 the OVAR/GEC curriculum specialist and research assistant conducted a telephone survey of the following US schools of pharmacy:

Medical University of South Carolina
Oregon State University
Philadelphia College of Pharmacy and Science
Purdue University
University of Arizona
University of Arkansas
University of Florida
University of Michigan
University of North Carolina
University of Utah
University of Washington
Virginia Commonwealth University

A comprehensive questionnaire was developed with the assistance of the OVAR/GEC core faculty representative from the UK College of Pharmacy and the OVAR/GEC information specialist. These structured questions guided each interview and assured consistency as the curriculum specialist and the research assistant conducted their interviews.

The telephone interviews assessed the number and characteristics of courses with 100% geriatric content currently offered by each school of pharmacy. Specifically, the respondents were asked to elaborate on: 1) faculty involvement, 2) if the courses were required for pharmacy students, 3) the number of years offered and the average number of pharmacy students participating per year, 4) if students from other health care disciplines were involved, 5) the number of contact hours, 6) if the courses included experiential or clinical activities and if so, the settings utilized, 7) the content covered, and 8) the instructional methods.

Information also was obtained about the number of pharmacy courses integrating geriatric content. The faculty representatives identified those courses by titles and hours or by percentages of time committed to geriatrics.

The interviews also included discussions about the structure of the degree programs, postdoctoral activities, program administration of the geriatric curriculum, and some information concerning utilization of resources. In particular, the OVAR/GEC was interested in examining the extent to which GECs were making an impact on the geriatric pharmacy programs.

Data collection included two telephone interviews: an initial interview to discuss the various aspects of the program and a brief follow-up discussion to validate some of the data. Validation also was provided in the form of a program matrix, reviewed and returned by each school of pharmacy.

LIMITATIONS OF THE STUDY

In any survey of this nature based on a selected sample, it is obvious that data from other programs could have been valuable. Due to a variety of constraints, data gathering was limited to 12 schools. One school that had been highly recommended as a comprehensive geriatric pharmacy program had to be excluded from the survey because schedules for the interview could not be coordinated. Furthermore, some of the questions covered in the survey weren't as fully developed as they might have been in a written questionnaire.

However, for the purpose of this report, the schools contacted provide a basis for examining comprehensive geriatric pharmacy program development.

RESULTS

Data have been summarized in five major categories: 1) degree program structure; 2) 100% geriatric pharmacy courses - didactic and clerkships; 3) postdoctoral activities; 4) program administration; and 5) impact of Geriatric Education Centers. Tables of corresponding data follow the report in an Appendix.

Degree Program Structure

Of the 12 schools surveyed, all except one offered a B.S. program in pharmacy (Table 1). Two schools now offering the B.S. plan to convert to only the Pharm.D. program in coming academic years.

Ten schools currently offer a Pharm.D. program. Two require a B.S. for students entering the program while eight allow students to enter prior to completing the entire B.S. track. Ten schools offer a Master's program and 11 offer a Ph.D. Program enrollment at both the B.S. and Pharm. D. levels varies a good deal from school to school.

Geriatric Course Offerings

The survey sought to identify courses in the B.S. and Pharm.D. programs that are 100% geriatric content. Table 2 reflects both didactic and clinical offerings and lists course titles. It will be noted that all 12 schools offer at least one didactic and one clinical experience and three schools offer as many as five courses. Five schools (42%) offer three courses.

Didactic Courses

A total of 21 didactic courses is reflected in Table 3. Of this number, only one is a required course - University of Arizona's Long Term Care Experiential. This required course enrolls approximately 55 students per year and includes interview and assessment activities in long term care and community settings. Most of the didactic courses are offered in the early professional years and include a range of contact hours from a low of 15 to a high of 45. Fifteen courses include at least 30 contact hours.

The last column of Table 3 was entitled "lab hours" for the sake of brevity. These data reflect experiential or clinical activities that are incorporated as part of the didactic experience, such as visits to long term care facilities. Seven schools offer these as part of their courses and one school has two courses with a lab component.

The number of pharmacy students enrolled in the 20 elective courses varies greatly, from a low of 1 to a high of 50. Six of the 20 elective courses (30%) enroll 30 or more students.

Of the 12 schools shown on Table 3, 7 (58%) are offering at least one course in geriatric pharmacy to students from other disciplines. In fact, Oregon State's Drugs and the Elderly is limited to non-pharmacy students.

To teach the didactic courses, the schools surveyed draw on a wide range of faculty expertise. Faculty are divided into four areas: full time pharmacy faculty, adjunct pharmacy faculty, multidisciplinary faculty and other (Table 3). All schools use at lease one full time pharmacy faculty member and five use five or more. The multidisciplinary faculty represent medicine, nursing, dentistry, the behavioral sciences, gerontology and other health disciplines. The multidisciplinary faculty are usually guest lecturers but in some instances compose a "teaching team." The "other" category reflects teaching assistants, as well as community pharmacists, state health agency workers, and a host of professionals from aging and social service agencies who guest lecture or are members of panel discussions.

Clerkships

Table 4 and Table 5 show geriatric clerkship offerings at the B.S. and Pharm. D. levels, respectively. Three schools offer a clerkship to B.S. students and three offer a clerkship only to Pharm. D. students. Six schools offer one or more clerkships to both levels of students.

All clerkships at the B. S. level are elective with the exception of the University of Arkansas. At the Pharm. D. level, four schools require a geriatric clerkship.

The range of contact hours in a clinical setting varies from a low of 50 hours to a high of 440. The number of students in the clerkships is generally small except for the programs that require them.

Two schools confine their clerkships to a single setting while ten have their students in two or more settings. All 12 schools offer their students opportunities for multidisciplinary involvement in the clinical setting.

Postdoctoral Activities

Four schools offer residencies in geriatric pharmacy (Table 6). All the programs have one resident for a period of a year and three of them are accredited by professional associations. At the moment, University of Arkansas is the only residency program that is university based rather than hospital based.

The definitions of training goals show that each program has a slightly different emphasis in the development of the resident's skills. For example, the Philadelphia College of Pharmacy and Science has the resident put primary emphasis on geriatric practice and teaching, with almost no research training, while the University of Florida incorporates a greater research component into the residency.

The "Funding" column shows that each of the institutions draws on different sources. Philadelphia's funding comes from the community, Arkansas' from the College of Pharmacy and the other two programs receive federal funds.

Table 7 shows that fellowship programs are available at three of the schools surveyed, with Philadelphia offering two. In contrast to the residencies, which are highly practice oriented, the fellowships put their emphasis on research.

All these fellowship programs are new and the length of the training period varies. For example, unlike the 1 or 2 year fellowship programs, Virginia Commonwealth's fellows are involved for one month in highly individualized research activities.

As with residencies, funding varies for the fellowships. Philadelphia's is split between the institution and private grants, for example, while Arizona and Virginia Commonwealth receive 100% outside monies for their fellowships.

Program Administration

The University of Washington is the only program that has a faculty person coordinating geriatric pharmacy in an official capacity (Table 8). That person's title is Coordinator, Geriatric Pharmacy Programs. The remaining 11 perform functions as course coordinators and may, in fact, represent their institution with regard to geriatric pharmacy as needed.

With the exception of two schools whose programs have been in place since 1973-74, these geriatric education programs are of fairly recent origin. Growth began in 1978-79 (4 programs initiated) and continued through 1983 (Table 3).

All 12 schools started their programs with financial help from their own institutions. This was usually in the form of funds from the general operating budget and the consent to commit faculty time to coursework on an elective basis. Four schools received additional federal monies.

All programs are still receiving money from their general operating budgets. Only Arkansas and Washington are receiving additional institutional funds that are specified for geriatric pharmacy training. Four programs still receive some federal monies while three receive funding from other sources such as foundations, industry and private grants.

Impact of GECs

Five of the 12 schools surveyed currently are affiliated with a Geriatric Education Center. Six have had no association with a GEC at any time. The University of Michigan was affiliated with a GEC from 1983-1986.

A primary purpose of the GECs nationally is to develop faculty in geriatrics. As can be seen from the column "Impact of GEC on program" (Table 8), GECs are performing this training function in a variety of ways. Some are offering financial assistance as in the case of North Carolina's clerkship and Virginia Commonwealth's fellowship. In virtually all cases, faculty involved with the GECs are becoming part of an informal network of resource people in the field of geriatrics.

DISCUSSION

Comprehensive Didactic and Clinical Curriculum

As is evident from the tables, six of the 12 (50%) schools surveyed offer a complete range of geriatric pharmacy training from the undergraduate level through postdoctoral experiences. Yet even for those schools whose current offerings in geriatric pharmacy consist of only one didactic course and one clerkship, the opportunity exists for interested students to move from base level knowledge to an applied learning setting.

For programs with just one didactic course, the emphasis often is divided between the various aspects of aging and their implications for drug therapeutics, and the realities of long term care in the state and the nation. For programs with more than one didactic course, they usually are divided precisely along those lines: an initial course that introduces the base level content of geriatrics/gerontology with emphasis on long term care and the role of the consultant pharmacist, followed by a course that concentrates on normal and disease states in aging and the resulting medication implications. Oregon State has a sequentially designed curriculum, moving from base level knowledge to clinical application. Each course is prerequisite for the next.

Innovative instructional ideas are utilized by many of the programs. Some didactic courses, such as the University of North Carolina's, include a sensitizing session in which students wear special glasses, ear plugs and other devices that simulate sensory loss of older people.

Students in the University of Arkansas Geriatric Therapeutics class must complete a "windshield survey." This involves driving through sections of Little Rock having high elderly populations and identifying environmental hazards that would impact on health and health care.

Some programs incorporate activities that allow students to observe health care delivery to older adults in a variety of settings. Virginia Commonwealth offers nine different site visits, as well as rounds at a hospice and the Veterans Administration Medical Center, a survey on community resources and a presentation to a civic organization.

Nine programs have didactic courses open to other disciplines with Oregon State offering one specifically to non-pharmacy health care students. Additionally, University of Arkansas pharmacy students can take an interdisciplinary course focusing on health care for the elderly that is offered on the arts and sciences campus. All these efforts recognize the reality of the team approach to health care and the role that medications play for various team members.

Each of the 12 schools surveyed gives students the chance to practice clinically what they've learned didactically. Clerkships require students to do patient assessment, medication reviews, patient education and case presentations. They participate in rounds and staff conferences. Several programs require students to prepare inservice programs for other health professionals.

Settings vary a good deal, from nursing homes, hospitals and Veterans Administration Medical Centers, to ambulatory clinics and senior centers, to home visits and retirement communities. These settings give students a chance to work with the well elderly in addition to visits with the acutely or chronically ill.

All 12 schools are trying to give their students opportunities to work in an interdisciplinary capacity with other health professionals. For example, at the University of Arizona, clerkship students participate in Project Age Well, sponsored by the Brookdale Foundation. The project includes physicians, nurse practicioners, pharmacists, nutritionists, exercise physiologists, counselors and medical social workers who work as a team with the well elderly in a health promotion program. Pharmacists have the opportunity for early intervention and medication management.

The University of Utah clerkships involve students for 5-6 weeks in intensive interdisciplinary team experiences from the Veterans Administration Medical Center. Students participate in team teaching rounds, team patient care staff meetings, and discharge planning as part of the Geriatric Evaluation and Training Unit. Ambulatory clinics are conducted twice weekly and students also participate in home visits with the health team and their pharmacy preceptors.

None of these programs sprang into existence full blown but are the products of gradual building on a foundation. The University of Washington offers one of the most comprehensive programs encountered in the survey. It began in 1973 with the undergraduate Nursing Home Practice course. It now has built to didactic course offerings for both B.S. and Pharm. D. students as well as clerkships for the two groups.

Similarly, Oregon State moved from one didactic course with a lab to five courses, one of which is for non-pharmacy health care students. It should be noted that these opportunities are available in a program at the B. S. level.

Half the schools surveyed offer training at the first professional level and at the postdoctoral level. The Philadelphia College of Pharmacy and Science offers both a residency and fellowships. The availability of advanced training at these schools seems to indicate a high level of institutional commitment to geriatric education.

Assets and Problems of Programs

Faculty

In all cases, geriatric pharmacy education is initiated with the expertise, commitment and interest of faculty available to teach the courses. Often this has been one person on a pharmacy faculty acting as a driving force.

While one person can achieve a great deal, as evidenced by several of the schools surveyed, such a situation imposes its limits. If no other faculty members trained in geriatric pharmacy are available to share the course load and clinical teaching, and if there isn't strong administrative support for the effort, the program risks becoming dependent on that one person and could be in jeopardy if he/she leaves the institution.

The University of Washington is this survey's best example of faculty depth. The School of Pharmacy has approximately 15 faculty trained in geriatric pharmacy to teach the didactic courses and oversee the clinical experiences. Furthermore, the Northwest Geriatric Education Center is offering nine of the pharmacy faculty additional experiences through a trainee program.

Administrative Support

The degree of administrative backing varied from school to school, with the minimum being time and funding for two freestanding courses. Several programs have the strong backing of a Dean who sees geriatric pharmacy as a curricular priority. This has helped them gain access to curricular time and in some cases, such as Arkansas and Purdue, helped put in place a required clerkship.

Curriculum

This leads us to the universal problem of time in the curriculum. As noted in an earlier section, all the didactic courses except one are offered on an elective basis. Our survey did identify some course integration of geriatric content in required undergraduate courses, but with the exception of the University of Washington, none had more than a total of 20 hours of geriatric content integrated within the required curriculum. Several of the programs require clinical training in geriatric pharmacy prior to graduation. It would be possible for students to graduate even from those programs with just a few weeks of geriatric training, rather than incorporate the breadth of a didactic course. Although half the programs mentioned lack of student interest as a problem, others have found counseling to be an effective method for increasing course enrollment.

Collaboration

An additional strength of many of these programs is their ability to work cooperatively on geriatrics outside their schools of pharmacy. Some do this via their own institutions's gerontology center or a Geriatric Education Center. The following are some examples of these activities: Virginia Commonwealth has both a GEC and a Center on Aging in which pharmacy faculty participate; the Medical University of South Carolina has a university-wide committee on geriatrics with pharmacy representation; the University of Arizona works with its College of Medicine in research collaboration with a Geriatric Research Education Center; and at the University of Washington, the School of Pharmacy participates in both an interdisciplinary nursing home program and three core courses in gerontology which are administered by the University's Institute on Aging.

Several of the programs cross institutional boundaries: Philadelphia College of Pharmacy and Science participates in a Geriatric Education Center based at the Center for the Study of Aging at the University of Pennsylvania; the University of North Carolina works with Duke University's Center on Aging; and the University of Michigan GEC worked with Wayne State University and Michigan State through an Institute of Gerontology. Two College of Pharmacy faculty remain associate faculty with the Institute.

In addition to making more facilities available for training students, these cooperative efforts have created good local networking. Faculty have been put in touch with others whom they draw on for guest lectures, instructional ideas, research projects and empathetic support.

Future Directions

Just as the programs surveyed did not come into existence overnight, neither are they static. The competition for curriculum time and funding is ongoing. Progress and setbacks may come side-by-side. For example, the University of Washington will lose a required clerkship to elective status because the revised pharmacy curriculum will include fewer required clerkships and a large number of electives. At the same time, Washington's College of Pharmacy now offers its own certificate program in geriatric pharmacy practice. The program was developed primarily for registered pharmacy practitioners who wish to develop expertise in geriatric pharmacy; but through careful course selection, students in the undergraduate program could also earn the certificate concurrently with their B.S. degree.

All the schools surveyed are continuing to evolve. Some are moving to a Pharm. D. program. Several are trying to expand their geriatric rotations and/or make them a requirement. Two programs are looking for additional postdoctoral training opportunities. One school wants to put more emphasis on home health care while another is working to put an official group in place to promote further education, research and service in geriatric pharmacy. Change continues.

CONCLUSIONS

This survey sought to identify "state-of-the-art" programs in geriatric pharmacy and to examine their curricula in order to determine the potential for training pharmacy students in geriatric pharmacy practice. The following elements are woven throughout the curricula of these twelve programs and provide guidelines for future education and training activities in geriatric pharmacy:

1. Comprehensive didactic and clinical experiences at the B.S. and Pharm. D. level, offering students an opportunity to move sequentially through a curriculum from base level knowledge in geriatrics and gerontology to more advanced clinical applications of this is knowledge. Half of the schools include postdoctoral training.

2. Multidisciplinary and interdisciplinary approaches both in the didactic and clinical components of the student's education. Faculty and students from other disciplines such as medicine, nursing, nutrition, and gerontology are involved in the instructional setting.

3. Utilization of a wide variety of settings for the didactic and clinical experiences, including geriatric evaluation units, nursing homes, home care programs, and senior citizens centers.

4. Collaborative efforts between the schools of pharmacy and existing resources, both intra-institutional and inter-institutional. Gerontology Centers, Geriatric Education Centers, VAMCs and other institutions are providing resources for team taught courses, faculty development activities, certificate programs and research endeavors.

5. Commitment to flexibility and change. Due to the dedicated efforts of one or two faculty and strong administrative support, most of the programs have evolved gradually from one or two course offerings to extensive didactic and clinical activities. The programs have successfully managed to find a place within a rigid curriculum, and continue to evidence growth even in the face of many constraints.

Based upon the guidelines provided by these selected programs, the OVAR/GEC recommends that pharmacy educators within the consortium review the data provided in this report along with recent recommendations concerning content in the curriculum provided by Simonson in his survey of practicing pharmacists.[4] This can be the base on which to begin the process of evaluating their own program structure and identifying deficient content areas where geriatric pharmacy training could be implemented.

Once careful consideration of the curriculum has been completed, the nature of the program implemented undoubtedly will depend upon available resources and degree of commitment the pharmacy schools wish to direct toward the goal of geriatric pharmacy education for their students.

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APPENDIX

Direct Comparison Tables

OVAR/GEC Geriatric Pharmacy Curricular Survey
Direct Comparison of Data
May, 1987

Table 1
TYPES OF PHARMACY DEGREES AWARDED/AVERAGE B.S., PHARM.D. ENROLLMENT

Schools Surveyed	B.S. 5 yr	Pharm.D. B.S. not req.	Pharm. D. B.S. req.	M.S.	Ph.D	Average # B.S. stu.	Average # Pharm.D.stu
Medical U of S Carolina	X		X		X	200	20
Oregon State U	X			X	X	85	
Philadelphia C of Pharmacy	X	X		X	X	200	14
Purdue U	X	X		X	X	130	20
U of Arizona	X	X**		X	X	65	10
U of Arkansas	X*			X		200	
U of Florida	X	X			X	30	70
U of Michigan		X		X	X		160
U of North Carolina	X	X		X	X	490	18
U of Utah	X	X		X	X	48	8
U of Washington	X		X	X	X	175	12
Virginia Commonwealth U	X	X		X	X	315	18

* All Pharm.D. by 9/87.
** All Pharm. D. by 9/91.

Table 2
NUMBER OF 100% GERIATRIC COURSES

Schools Surveyed	1	2	3	4	5	Titles
Medical U of S Carolina		X				Geriatric Pharmacy (D) Clerkship in Geriatric Pharmacy (C)
Oregon State U					X	Geriatric Pharmacy Practice (D) Nursing Home Pharmacy Practice 461 (C) Nursing Home Pract. Practice 462 (C) Geriatric Pharmacy Clerkship (C) Drugs and the Elderly(non-pharm) (D)
Ph[illegible]a C of Pharmacy			X			Geriatric & Long Term Care Pharmacy Practice (D) Drug Therapy & the Aged Patient (D) Geriatric Clerkship (C)
Purdue [illegible]					X	Geriatric Pharmacy Practice (D) Geriatric Therapeutics (D) (2) Introductory Geriatric Clinical Clerkships (C) Advanced Pharm.D Clerkship in Geriatrics (C)
U of Arizona			X			Perspectives in Geriatrics (D) Long Term Care Experiential (D) Geriatric Ambulatory Care Clerkship (C)
U of Arkansas*			X			Administrative Consult Pharmacy (D) Geriatric Therapeutics (D) Geriatric/Long Term Care Clerkship (C)

D = Didactic course
C = Clinical experience
* The arts and sciences campus of the University of Arkansas offers a course through its department of Sociology, Anthropology and Gerontology called Interdisciplinary Health Care of the Elderly. Students from many health disciplines, including pharmacy, participate.

Table 2
NUMBER OF 100% GERIATRIC COURSES

Schools Surveyed	1	2	3	4	5	Titles
U of Florida		X				Geriatric Drug Use & Long Term Care (D) Nursing Home Clerkship (C)
U of Michigan		X				The Aging Patient (D) Clerkship (C)
U of N Carolina		X				Pharmacy Practice for the Geriatric Patient (D) Primary Care Rotation Clerkship (C)
U of Utah			X			Drug Use in the Elderly (D) (2) Geriatric Clerkships (C)
U of Washington**					X	Pharmacotherapeutics for Older Adults (D) Drug Therapy in Elderly (D) *Pharmaceutical Service for LTC (D) Advanced Clinical Clerkship LTC (C) Advanced Clinical Clerkship Geriatric Pharmacy (C)
Virginia Commonwealth U			X			Drug Use in the Elderly (D) (2) Geriatric Clerkships (C)

* 75% Geriatric content
** An advanced clinical clerkship is also offered for the Geriatric Pharmacy Certificate Program.

Table 3
B.S., PHARM.D. DIDACTIC GERIATRIC COURSES

Schools Surveyed	Professional Yr.		Faculty				Type Course		# Yrs.	Pharm. stu.	Other disc.		Total	"Lab"
	B.S.	Pharm.D.	Full Phm.	Adj. Phm.	Multidis.	Other	Req.	Elect.	offered	per yr.	yes	no	contact hrs.	hrs.
Medical U of S.Carolina														
Geriatric Pharmacy	3		4	1	7	3		X	8	20	X		48	9
Oregon State U														
Geriatric Phm Pract.	2/3		1		2	1		X	7	30-45		X	33	
Nurs. Hm. Phm Pract(461)	2/3		1			1		X	12	12		X	55	33
Nurs. Hm. Phm Pract(462)	2/3		1			1		X	12	1		X	55	33
Drugs & Elderly (non-pharm)	NA		1					X	11	NA	X		30	
Philadelphia C of Pharmacy														
Geriatric & Long Term Care	3		2	1				X	7	50		X	28	
Drug Therapy	3	2	2		12			X	2	10	X		28	
Purdue U														
Geriatric Pharm Practice	2	2	2		3			X	3	20-30	X		15-16	
Geriatric Therapeutics	4/5	4/5	3					X	6	15-20		X	32	
U of Arizona														
Perspectives in Geriatrics	1	1	1		3	1		X	5	10	X		30	
*Long Term Care Experiential	1	1	1			6	X		6	55		X	45	
U of Arkansas														
Administrative Consult	3		2			1		X	3	15		X	45	1-3
Geriatric Therapeutics	3		1		2			X	6	30		X	45	3

*Lab hours not identified.

Table 3
B.S., PHARM.D. DIDACTIC GERIATRIC COURSES

Schools Surveyed	Professional Yr.		Faculty				Type Course		# Yrs.	Pharm. stu.	Other disc.		Total	"Lab"
	B.S.	Pharm.D.	Full Phm.	Adj. Phm.	Multidis.	Other	Req.	Elect.	offered	per yr.	yes	no	contact hrs.	hrs.
U of Florida														
Geriatric Drug Use & Long term Care	3	4	5		1	3		X	3	20		X	30	
U of Michigan														
The Aging Patient		3	1					X	6	10-12		X	28	
U of North Carolina														
Pharmacy Practice for the Geriatric Patient	3		3	1	3			X	2	10		X	45	3
U of Utah														
Drug use in the Elderly	4/5	1	2		8	1		X	6	25-35	X		30	
U of Washington														
Pharm Service for LTC	1/2/3		5	9				X	5	35		X	20	3
Drug Therapy in Elderly	3		6	2	7			X	1	8	X		30	
Pharmacotherapeutics for Older Adults		1/2	6	2	7			X	5	7	X		30	
Virginia Commonwealth U														
*Drug use in the Elderly	3	1/3	5		5			X	2	25		X	45	

*Lab hours not identified.

Table 4
GERIATRIC CLERKSHIP: B.S. LEVEL

Schools Surveyed	# Preceptors	Type Course		Contact hrs.	# students per year	Setting					
		Req.	Elect.			Nurs. home	Sr. Cit.	VAMC	Hosp.	Ambul. Clin.	Other
Medical U of South Carolina	6		X	50	5	X	X				Home Health Agency
Oregon State U	2		X	440	3			X			
Purdue U	3		X	120	12-24	X					
U of Arizona	1		X	240	5		X			X	Housing sites
U of Arkansas	4	X		80	35	X			X		
U of Florida	1		X	200	15	X					
U of Utah	1		X	100	10-12	X		X			Home Visits
U of Washington	4		X	125-150	4	X			X		
Virginia Commonwealth U	2		X	160	1-2	X		X			Community Pharmacy Serving Nurs. Homes

Table 5
GERIATRIC CLERKSHIP: PHARM. D. LEVEL

Schools Surveyed	# Preceptors	Type Course		Contact hrs.	# students per year	Setting					
		Req.	Elect.			Nurs. home	Sr. Cit.	VAMC	Hosp.	Ambul. Clin.	Other
Philadelphia C of Pharmacy	1		X	160	1	X		X			
Purdue U											
Intro Ger. Clin. Clerkship	1		X	160	2-4	X		X			
Advanced Ger. Clerkship	1	X		320	14	X		X	X		(4) LTCF a state
U of Arizona	1		X	240	1		X			X	(3) Housin sites
U of Florida	1	X*		160	10	X					
U of Michigan	1	X**		200	40	X		X		X	Home Healt Agency
U of North Carolina	4		X	160	1-3	X					Retirement Community
U of Utah	1		X	120-180***	6-8	X		X		X	Home Visits
U of Washington	4	X		210	1-2	X			X		
Virginia Commonwealth U	2		X	160	1-2	X		X			Comm. Pharm

* Required for Pharm. D's entering community practice.
** The ambulatory rotation is required. The settings indicated vary from 30% to 100% geriatric content.
*** Pharm D -- 2nd year = 180-240 hrs.

Table 6
GERIATRIC RESIDENCY PROGRAMS: POSTDOCTORAL

Schools Surveyed	Definition	Residents per yr.	Accreditation	Length of residency	Primary Components			Funding source(s)
					ger. pharm. practice	research	teaching	
Philadelphia C of Pharmacy	Provide intense experience in all aspects of long term care	1		1 yr	X		X	Community Pharmacist
U of Arkansas	Develop practice and competence in geriatric pharmacy	1	ASCP ASHP	1 yr.	X	X	X	Coll of Pharm Poison & Drug Info Center
U of Florida	Expand drug therapy knowledge & learn research skills	1	ASHP	1 yr.	X	X	X	VA grant
U of Utah	Clincal geriatric medical training ASHP accredited	1	ASHP	1 yr.	X	X	X	VAMC ITTG Grant *

*Interdisciplinary Team Training in Geriatrics provides training in team process.

Table 7
GERIATRIC FELLOWSHIP: POSTDOCTORAL

Schools Surveyed	Definition	Area of focus	Length of training	# Fellows per year	#Yrs offered	Training Sites	Funding source(s)
Philadelphia C of Pharmacy Geriatrics Fellowship	Develop competency in teaching and research	Research, Teaching	1 yr	1	1	VAMC, Long Term Care, Home health agency	College, Grants
Fellowship in Geriatrics/Toxicology	Develop research skills in geriatrics/toxicology	Research	2 yrs	1	1	PCPS & Delaware Valley Poison Control Center	College, Grants
U of Arizona	Develop research capabilities in geriatric clinical science	Research, some teaching service	1 yr	1	1	LTC site: on & off campus	Industrial for 85-86
Virginia Commonwealth U	Train in geriatric research	Research, Teaching, patient care service	1 month (mini-fellowship)		1	VAMC	GEC

Table 8
PROGRAM ADMINISTRATION

Schools Surveyed	Individual designated to coordinate ger pharm prog		Year prog. initiated	Financial resources to start program			Current financial resources				GEC		Impact of GEC on program
	official	unofficial		Fed.	Univ.	Other	Fed.	University Oper. Budg.	University Ger. Fund	Other	yes	no	
Medical U of South Carolina		X	1978		X			X				X	
Oregon State U	X		1974		X			X				X	
Philadelphia C of Pharmacy	X		1979		X			X		X	X		Faculty training; (1) Core faculty
Purdue U	X		1978-79		X			X				X	
U of Arizona	X		1980	X	X			X		X		X	
U of Arkansas	X		1983	X	X			X	X			X	
U of Florida	X		1980		X		X	X				X	

Table 8
PROGRAM ADMINISTRATION

Schools Surveyed	Individual designated to coordinate ger pharm prog		Year prog. initiated	Financial resources to start program			Current financial resources					GEC		Impact of GEC on program
	official	unofficial		Fed.	Univ.	Other	Fed.	University Oper.Budg.	Ger.Fund	Other		yes	no	
U of Michigan		X	1980		X			X					X	GEC funding expired, 9/86; had helped in training,networks
U of North Carolina		X	1982	X	X		X	X				X		GEC grant for clerkship;Summer Institute,training; (3) Core faculty
U of Utah		X	1979-80	X	X			X				X		(2) Core faculty
U of Washington	X		1973		X		X	X	X	X		X		In-residence faculty training (2) Core faculty Summer Institute
Virginia Commonwealth U		X	1983		X		X	X				X		Fellowship program Resource guide for faculty; national teleconference on drugs (1) Core Faculty.